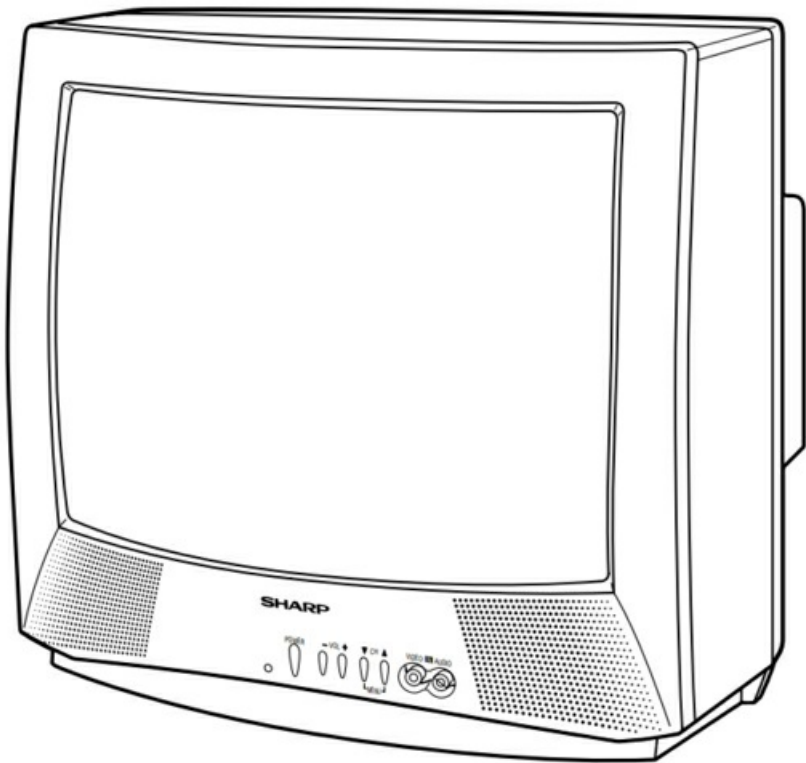


SHARP 20MR10 SERVICE MANUAL



Quick Links

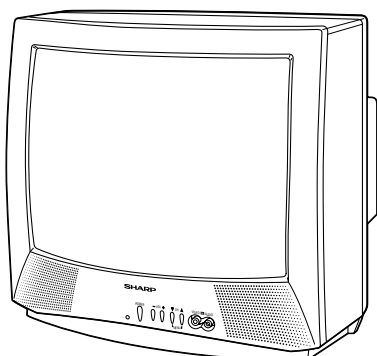
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SHARP**SERVICE MANUAL**

S11O220MR10

**COLOR TELEVISION****Chassis No. SN-010****MODEL****20MR10**

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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ELECTRICAL SPECIFICATIONS

POWER INPUT	AC 120 V, 60 Hz
POWER RATING	69 W
PICTURE SIZE	1,194cm ² (185sq inch)
CONVERGENCE	Magnetic
SWEEP DEFLECTION	Magnetic
FOCUS	Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency	45.75 MHz
Sound IF Carrier Frequency	41.25 MHz
Color Sub-Carrier Frequency	42.17 MHz
	(Nominal)
AUDIO POWER	
OUTPUT RATING	1 W (RMS)

SPEAKER	
SIZE	8 cm (Round)
VOICE COIL IMPEDANCE	32 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE	
VHF/UHF	75 ohm Unbalanced
TUNING RANGES	
VHF-Channels	2 thru 13
UHF-Channels	14 thru 69
CATV Channels	1 thru 125
	(EIA, Channel Plan U.S.A.)

Specifications are subject to change without prior notice.

SHARP CORPORATION

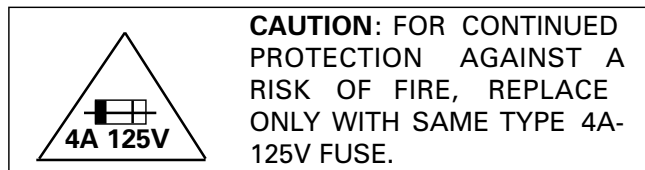
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

IMPORTANT SERVICE SAFETY PRECAUTION

- **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:**

WARNING

1. For continued safety no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+DC voltages and the secondary circuit of the high voltage transformer.
To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.



SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter.
The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value -no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and; also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When troubleshooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver. Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

IMPORTANT SERVICE SAFETY PRECAUTION

(Continued)

BEFORE RETURNING THE RECEIVER

(Fire & Shock Hazard)

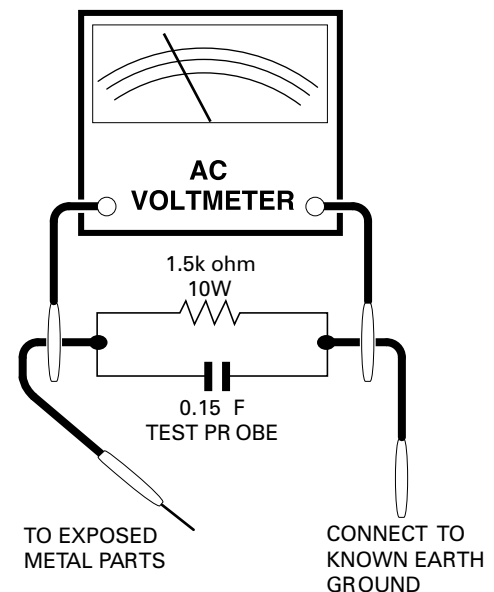
Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators and etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.
 - Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
 - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 μ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conductor electrical ground connected to earth ground.
 - Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.

- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon and etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)

Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



SAFETY NOTICE

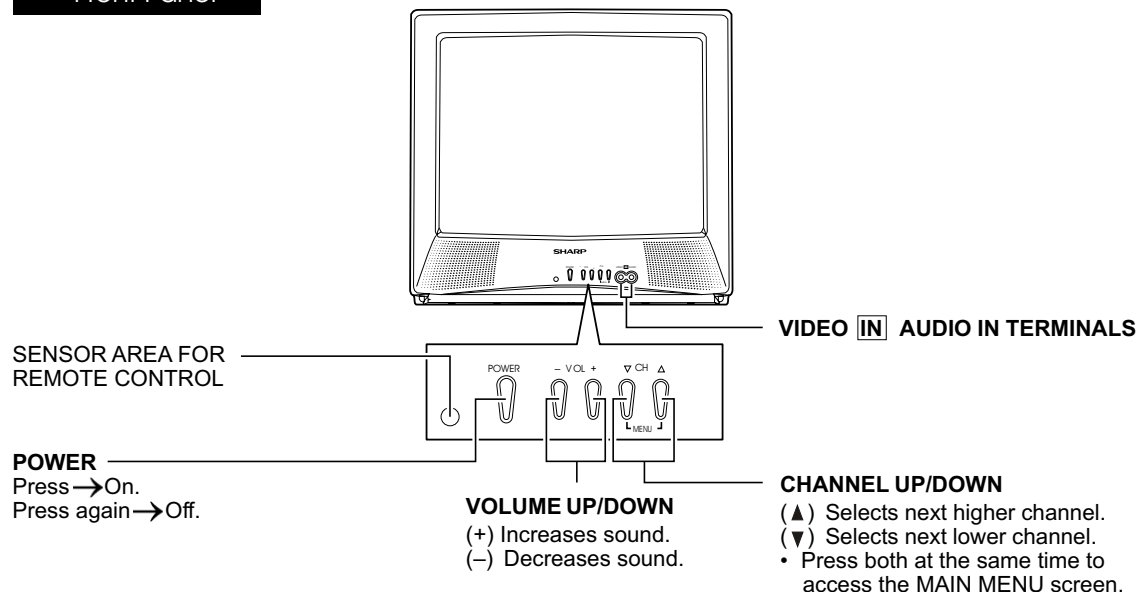
Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage and etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

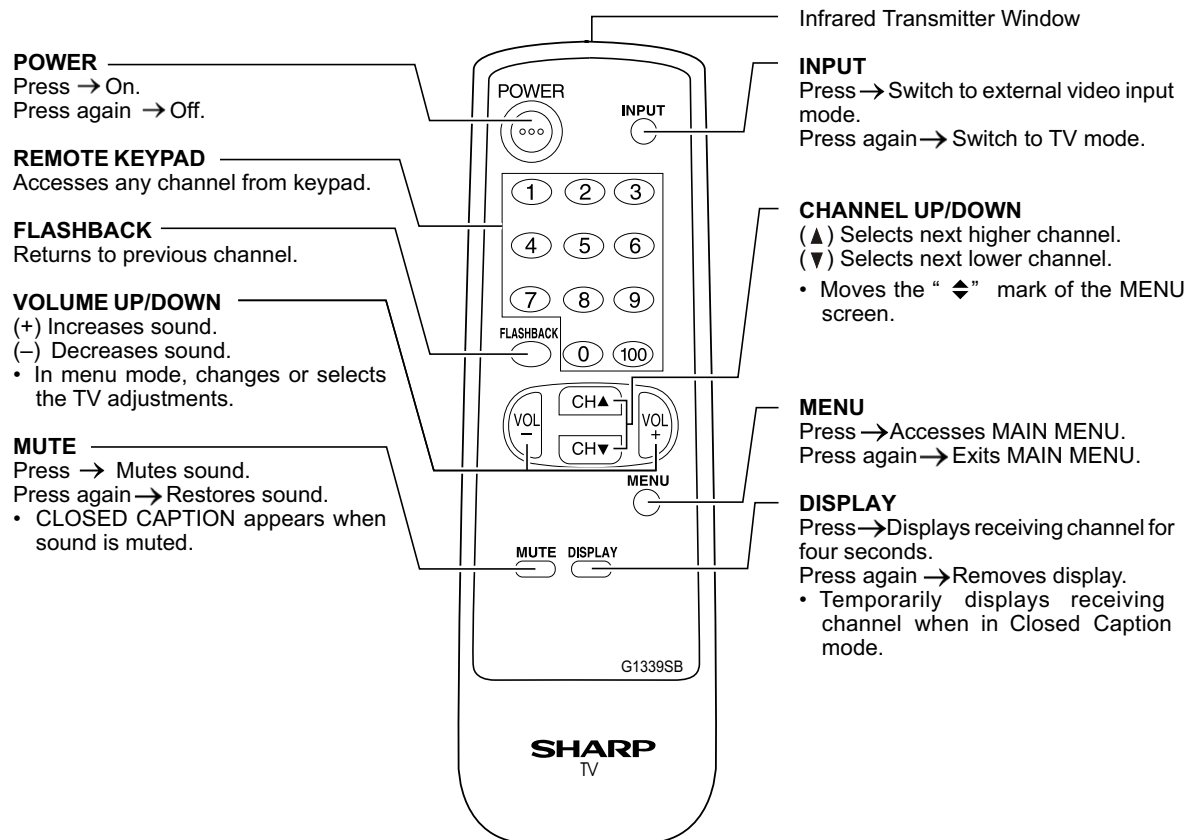
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

LOCATION OF USER'S CONTROL

Front Panel



Basic Remote Control Functions



INSTALLATION AND SERVICE INSTRUCTIONS

- Note:** (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.
 (2) Before performing adjustments, the TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

X-RADIATION PROTECT OR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to TP653 and make sure that the voltmeter reads $21.4 \pm 1.5V$.
5. Apply external 27.2V DC at TP653 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and select the service adjustment "S03" and Bus data "01" (Y-mute on).
4. The voltage should be approximately 26.0kV (at zero beam).

If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

For adjustments of this model, the bus data is converted to various analog signals by the D/A converter circuit.

Note: There are still a few analog adjustments in this series such as focus and master screen voltage. Follow the steps below whenever the service adjustment is required.

To enter the service mode and exit service mode.

While pressing the Vol-up and Ch-up buttons at the sametime, plug the AC cord into a wall socket.

Now, the TV set is switched on and enters the service mode.

To exit the service mode, turn the television off by pressing the power button.

1. Service mode.

Before putting unit into the service mode, check that customer adjustments are in the normal mode. Use the reset function in the video adjustment menu to ensure customer control are in their proper (reset) position.

2. Service number selection.

In the service mode, you will see the window screen as window ①. There are 3 adjustment categories ② DEF, ③ SIGNAL, ④ FIX VALUE as show in **Figure A**.

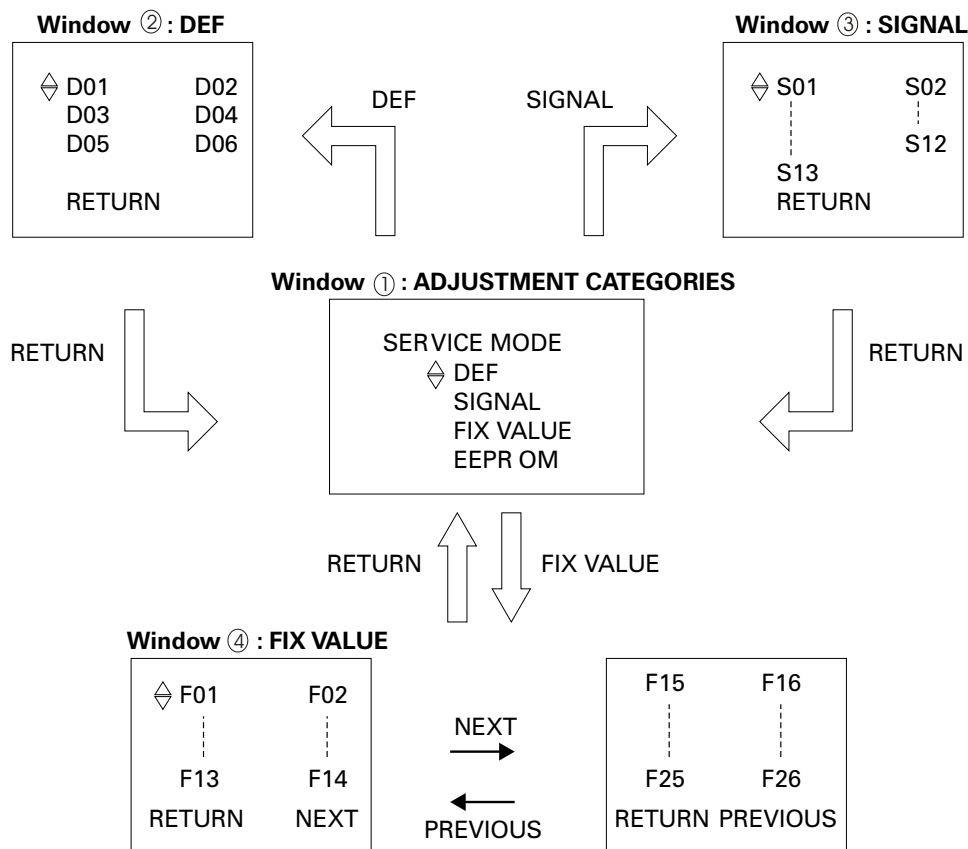


Figure A: ADJUSTMENT CATEGORIES

Press CH UP/DOWN button for selection and enter by VOL UP or VOL DOWN.

Press CH UP/DOWN button to select the adjustment item and VOL UP/DOWN to adjust the data number for each categories.

(OSD disturbance can be erased by R/C display key)

(Note: EEPROM – factory used only)

Below are the adjustments ranges and initial values for FIX VALUE category.

FIX VALUE

SERVICE POSITION	ADJUST ITEM	DATA		
		RANGE	INITIAL VALUE	(Hex)
F01	OPTION 1	00-FF	B0	A0
F02	OPTION 2	00-FF	04	0C
F03	E-SAVE	00-3F	23	2A
F04	TUNER SETUP	00, 01	00	00
F05	R-TONE RD	00-7F	19	03
F06	R-TONE BD	00-7F	00	7C
F07	B-TONE RD	00-7F	00	00
F08	B-TONE BD	00-7F	12	04
F09	FM LEVEL	00-1F	0C	0C
F10	AFC GAIN	00, 01	00	00
F11	G DRIVE	00, 0F	0F	0F
F12	FBT BLK SW	00, 01	01	01
F13	V COMP	00-07	07	07
F14	OSD CONT	00-07	02	01
F15	SHARPNESS	00-3F	19	19
F16	FLT SYS	00-03	00	00
F17	KILLER OP	00-07	04	02
F18	Y PRI	00-03	00	00
F19	CORING	00-07	04	04
F20	DC REST	00-03	02	02
F21	BS START	00-03	01	01
F22	BS GAIN	00-03	01	01
F23	ABL START	00-07	00	00
F24	R/B ANGLE	00-0F	08	08
F25	H BLK R	00-07	04	03
F26	H BLK L	00-07	04	00

Table - A

Below are the ranges and initial values for each adjustment and in each categories.

DEF

SERVICE POSITION	ADJUST ITEM	DATA		ADJUSTMENT CONTENTS
		RANGE	INITIAL VALUE	
D01	H-PHASE	00-1F	0C	
D02	V-SIZE	00-7F	40	
D03	V-POSITION	00-3F	20	Must be "20"
D04	CC-POSITION	00-FF	1A	
D05	V-LINEARITY	00-1F	10	Must be "18"
D06	V-S-CORRECTION	00-1F	10	Must be "0C"

Table - B

SIGNAL

SERVICE POSITION	ADJUST ITEM	DATA		ADJUSTMENT CONTENTS
		RANGE	INITIAL VALUE	
S01	RF AGC	00-3F	14	
S02	VIDEO LEVEL	00-07	03	
S03	Y-MUTE	00-03	00	"01":Y-MUTE, "02":V-STOP&Y-MUTE "03":Activate color killer
S04	SUB BIAS	00-FF	40	Must be "30"
S05	R-BIAS	00-FF	00	
S06	G-BIAS	00-FF	00	
S07	B-BIAS	00-FF	00	
S08	R-DRIVE	00-7F	40	
S09	B-DRIVE	00-7F	40	
S10	CONTRAST	00-7F	5A	
S11	TINT	00-7F	40	
S12	COLOR	00-7F	40	
S13	BRIGHTNESS	00-7F	40	

Note: Refer to the SERVICE ADJUSTMENT for each corresponding values.

Table - C

Holding down both the Vol-up/Ch-down buttons on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2102 (IC2101).

PART REPLACED	ADJUSTMENT		NOTES
	NECESSARY	UNNECESSARY	
IC2001		X	Data is stored in IC2102 (IC2101).
IC201	X		The adjustment is needed to compensate for characteristics of parts including IC201.
IC2102 (IC2101)	X		Holding down both the Vol-up/Ch-down buttons on the TV set in the service mode for more than 2 seconds will automatically write the above initial values into IC2102 (IC2101).
CRT	X		Adjust items related to picture tube only.

Table - D

	R2101	R2102	R2103	R2104
If using IC2101	○	○	- -	
If using IC2102	- -		○	○

Table - E

■ SERVICE ADJUSTMENT

RF AGC Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S01".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.

Note: You have to exit the service mode first to select another channel.

Video Level (TV Det Video Level) Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S02".
3. Set the data value to "02" first, then adjust the data in ranges 02 ± 2 step to obtain a normal contrast level.

Screen Adjustment

1. Connect to oscilloscope probe between TP855 and ground of the CRT unit.
2. Receive a good local channel.
3. Enter the service mode Signal category and set the service adjustment "S04" to step 30. Then select the service adjustment "S12" and set the data value to "00" to set the color level to the minimum level. (record the original data first). You may skip this step, if you selected a B/W picture or monoscope pattern. Set also the "S05/S06/S07" data to minimum level.
4. Select the service adjustment "S03" and set the data value to "01" to turn off the luminance signal (Y-mute).
5. Select the service adjustment "S13" and adjust the data value to obtain 2.35 volts as shown in **Figure B**.
6. Adjust the master screen control until the raster darkens to the point where raster is barely seen.
7. Adjust the service adjustment "S05" red, "S06" green and "S07" blue to obtain a good grey scale with normal white at low brightness level.
8. Select the service adjustment "S03" and reset data to "00". Select the service adjustment "S12" and reset data to obtain normal color level.
9. Remove probe and reset the master screen control to obtain normal brightness range.

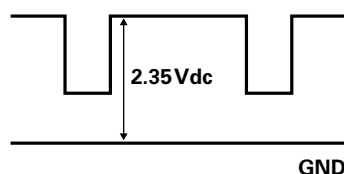


Figure B: WAVEFORM FOR SCREEN ADJUSTMENT

White Balance Adjustment

1. Receive a good local channel.
2. Select the service adjustment "S12" and set the data value to "00" to set the color level to the minimum. You may skip this step, if you selected a B/W picture or monoscope.
3. Alternately adjust the service adjustment data of "S08" and "S09" until a good grey scale with normal white is obtained.
4. Select the service adjustment "S12" and reset data to obtain normal color level.

Sub-Picture Adjustment

1. Receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select the service adjustment "S10".
4. Adjust the data value to achieve normal contrast range.

Sub-Tint Adjustment

1. Receive a good local channel.
2. Set the customer tint control to the center of its range.
3. Enter the service mode and select the service adjustment "S11".
4. Adjust "S11" data value to obtain normal fresh tones.

Sub-Color Adjustment

1. Receive a good local channel.
2. Make sure the customer color control is set to center position.
3. Enter the service mode and select the service adjustment "S12".
4. Adjust "S12" data value to obtain normal color level.

Adjustment Sub-Brightness

1. Receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select the service adjustment "S13".
4. Adjust "S13" data value to obtain normal brightness level.

Vertical-Size, V-Linearity and V-S Correction Adjustments

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D02" for Vertical Size, "D05" for V-Linearity and "D06" for V-S Correction Adjustment.
3. Set in order "D05" for V-Linearity, "D06" for V-S Correction and set the data to get the best linearity.
4. Then adjust "D02" data until it become a proper vertical size.

Horizontal Position Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D01".
3. Adjust "D01" data value to center the picture.

Vertical-Phase Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D03".
3. Adjust "D03" bus data to get the most acceptable vertical position.

Note: The step range is 20 (032) ± 10 steps.

Caption Position Adjustment (Horizontal)

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D04".
3. A black text box will appear on the screen. (see **Figure C.** below)
4. Adjust "D04" data value to balance the text box position in the center (A=B).

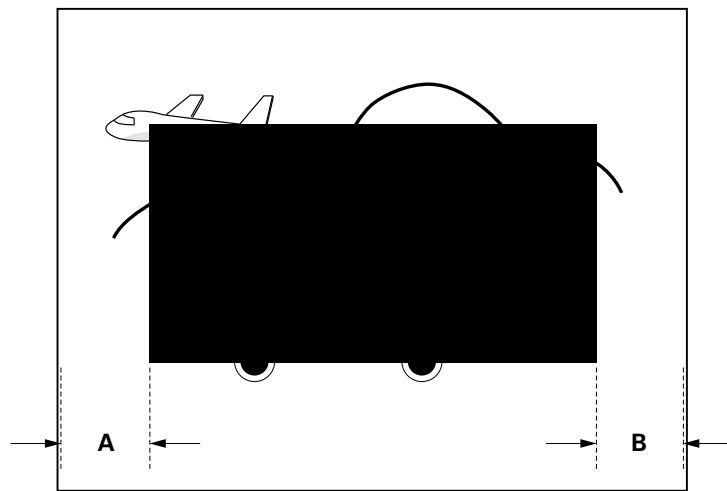
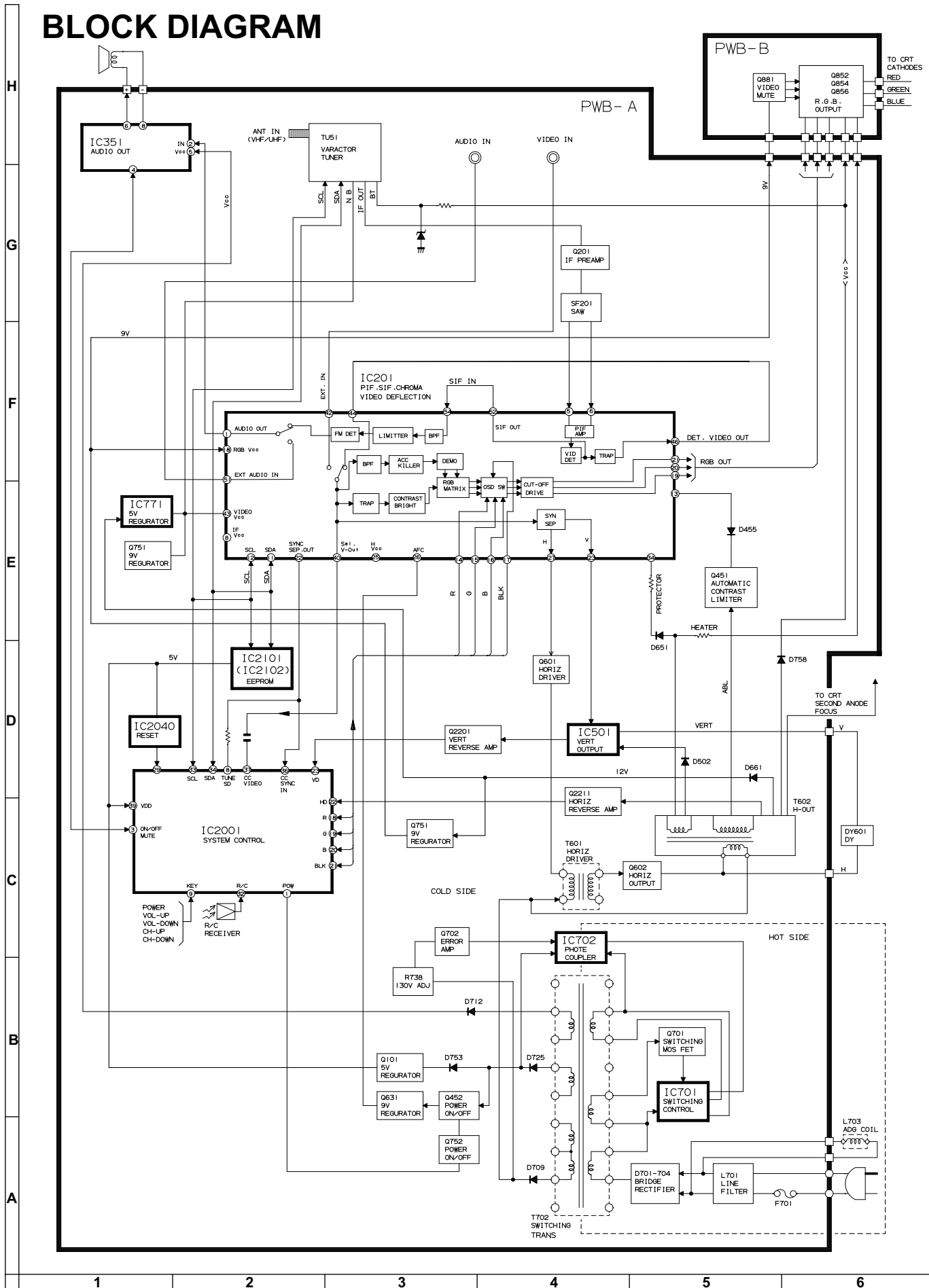


Figure C.



BLOCK DIAGRAM



DESCRIPTION OF SCHEMATIC DIAGRAM

NOTES:

1. The unit of resistance "ohm" is omitted.
($K=k\Omega=1000\Omega$, $M=M\Omega$)
2. All resistors are 1/10 watt, unless otherwise noted.
3. All capacitors are μF , unless otherwise noted.
($P=pF=\mu\mu F$)
4. (G) indicates $\pm 2\%$ tolerance may be used.
5. $\overline{\text{---}}$ indicates line isolated ground.

VOLTAGE MEASUREMENT CONDITIONS:

1. All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120VAC and all controls set for normal picture unless otherwise indicated.
2. All voltages measured with $1000\mu V$ B & W or Color signal.

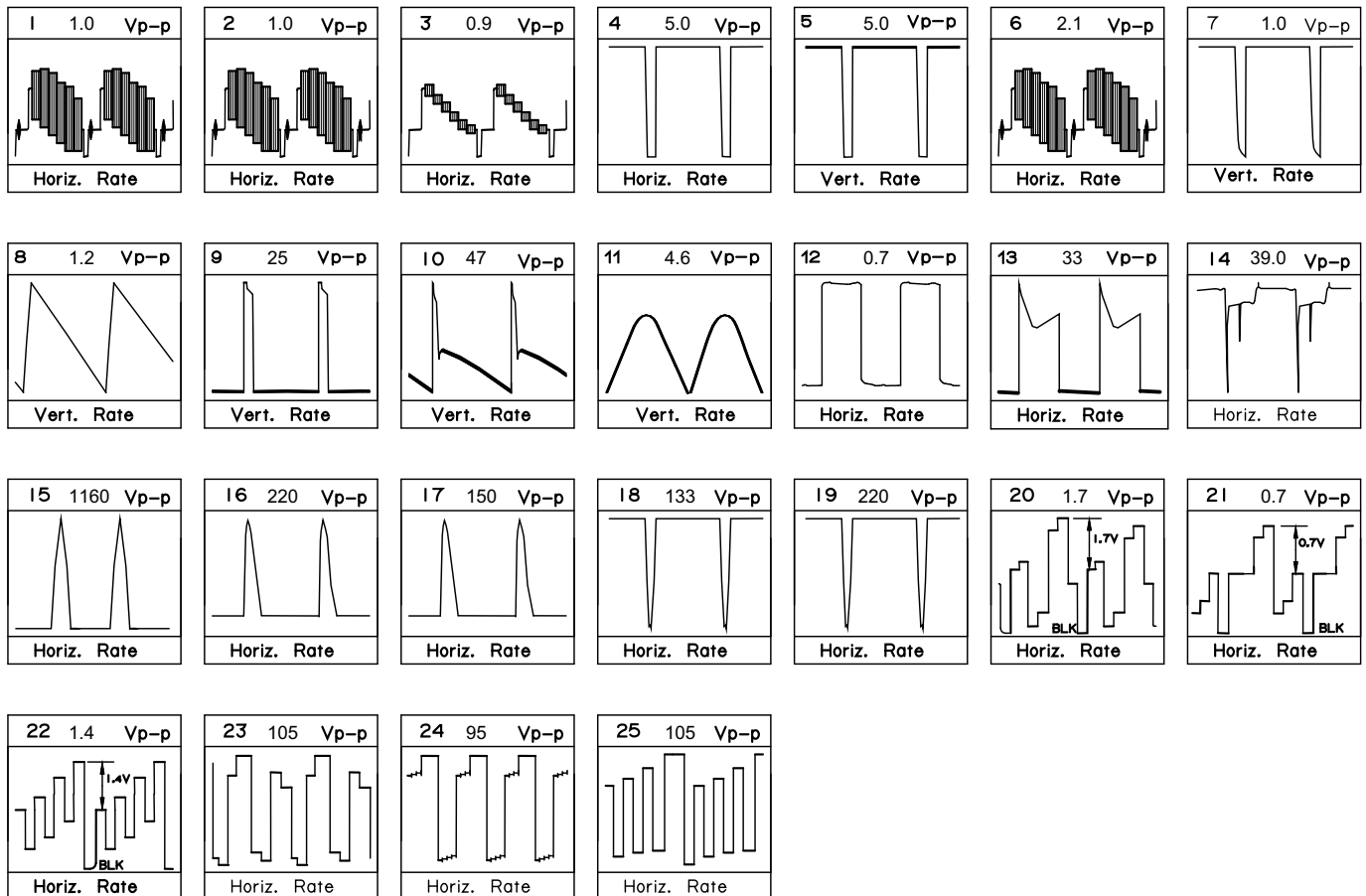
WAVEFORM MEASUREMENT CONDITIONS:

1. Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.
2. $\bigcirc$ indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)

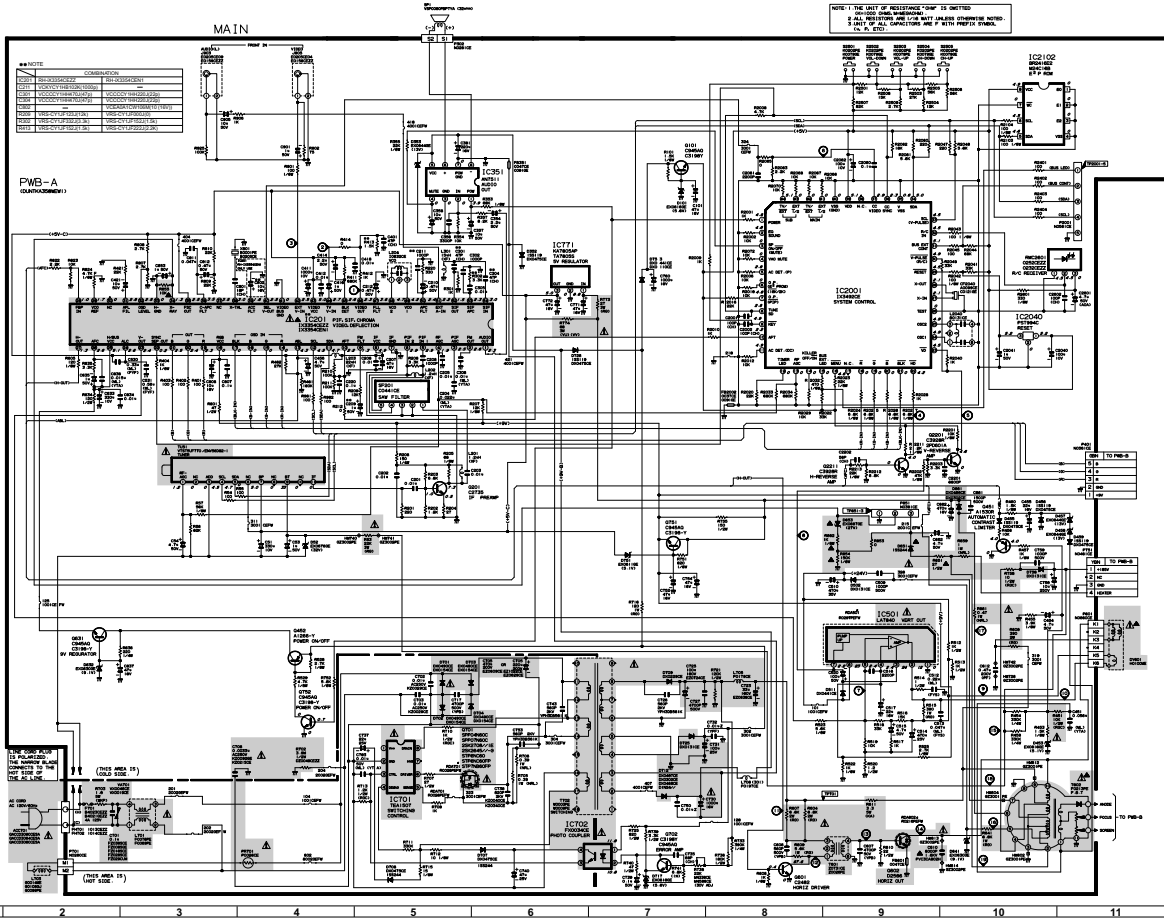
⚠ AND SHADED () COMPONENTS = SAFETY RELATED PARTS.
▲ MARK = X-RAY RELATED PARTS.

This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

WAVEFORMS



SCHEMATIC DIAGRAM: MAIN Unit



SCHEMATIC DIAGRAM: CRT Unit

H

G

F

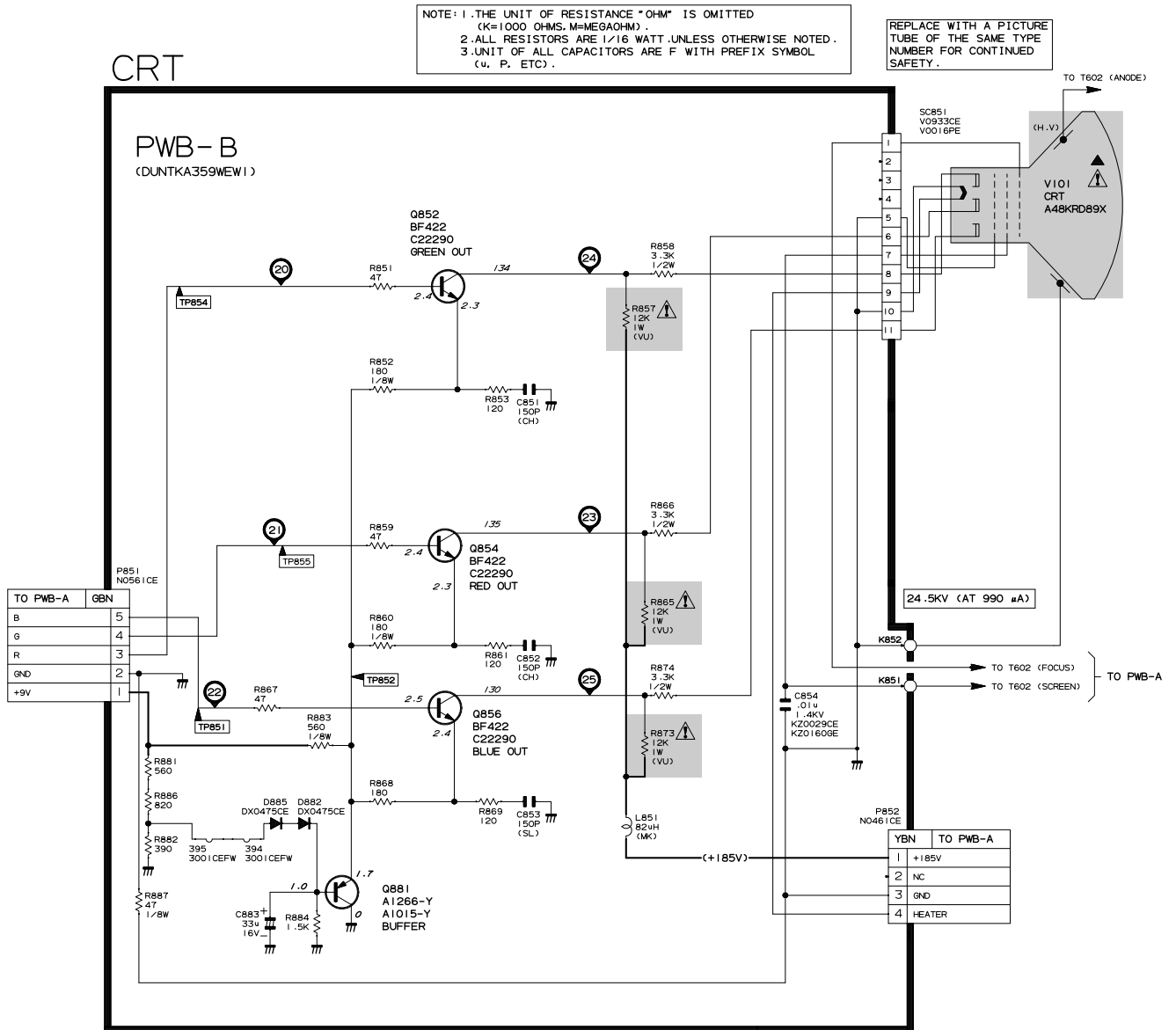
E

D

C

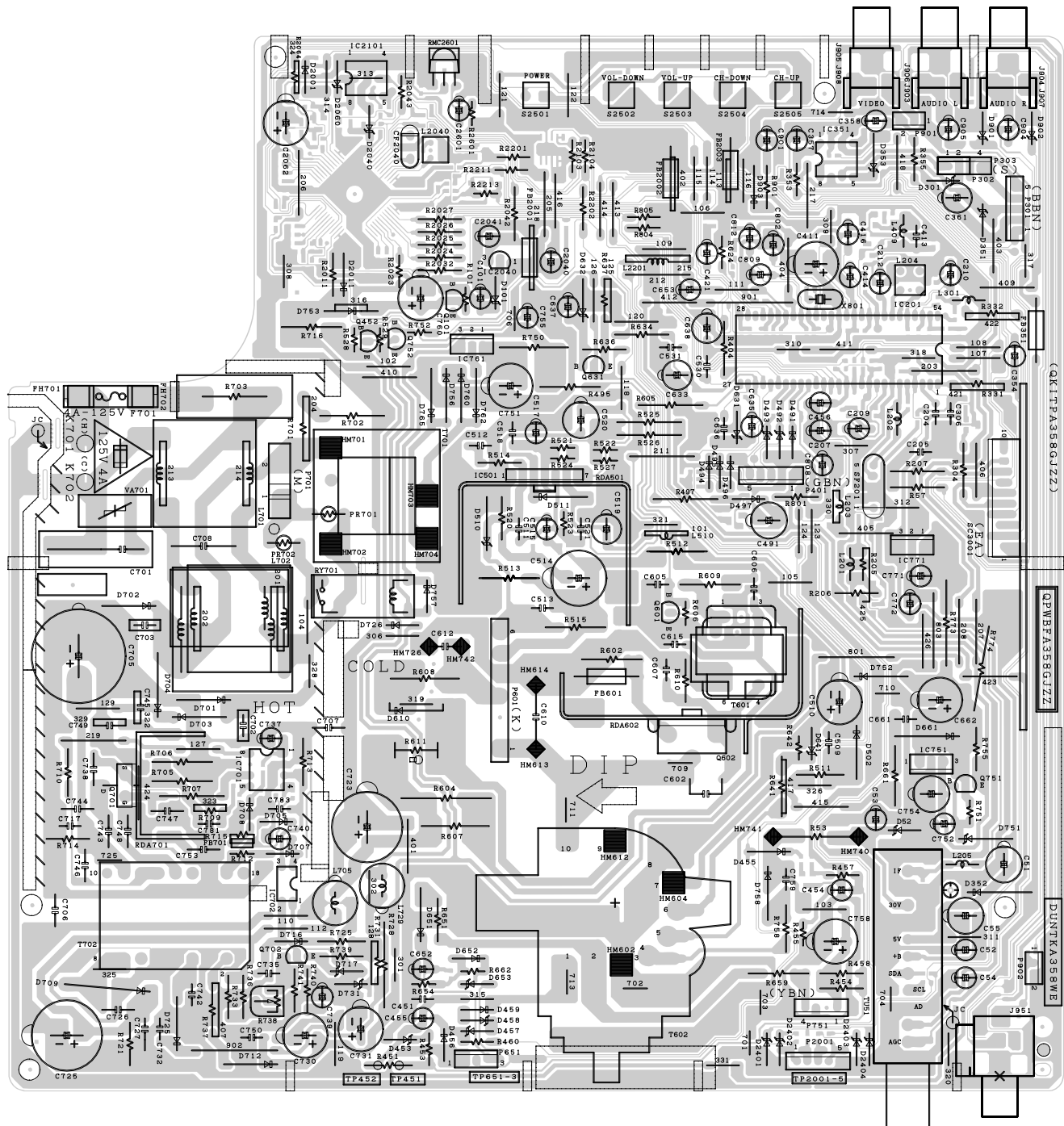
B

A



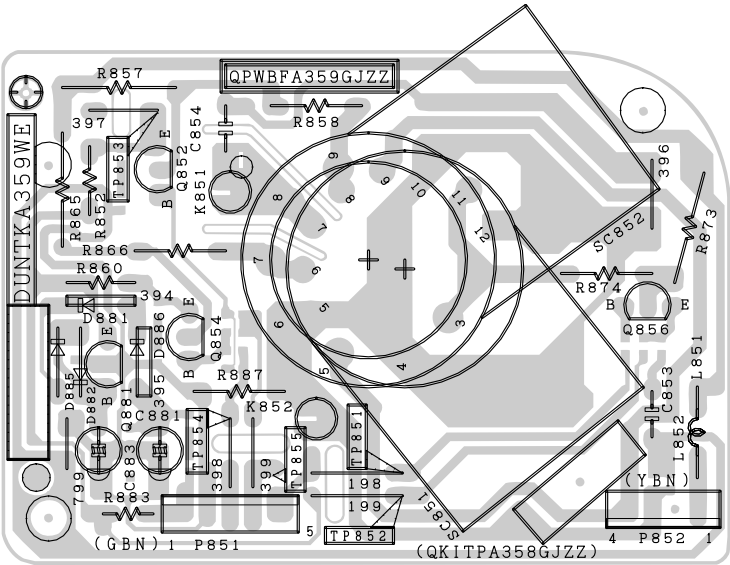
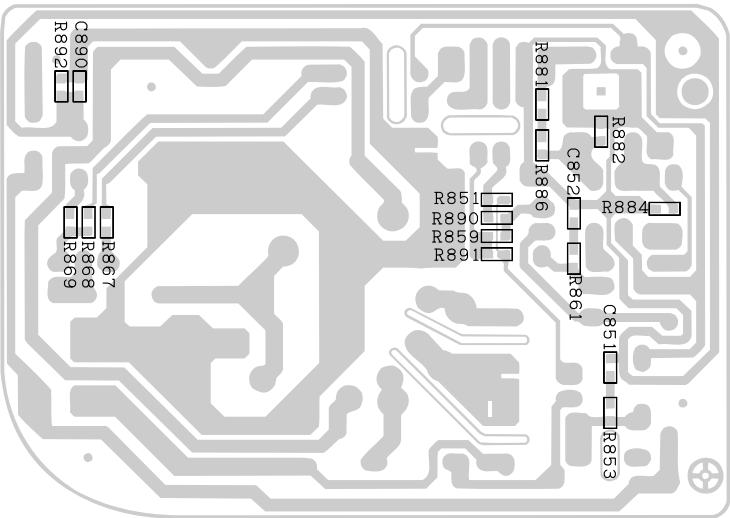
PRINTED WIRING BOARD ASSEMBLIES

H
G
F
E
D
C
B
A



PWB-A: MAIN Unit (Wiring Side)

1 2 3 4 5 6

H G F E D C B A						
	PWB-B: CRT Unit (Wiring Side)					
						
	PWB-B: CRT Unit (Chip Parts Side)					
	1	2	3	4	5	6

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by Δ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which does not have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

- | | |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO. |
| 3. PART NO. | 4. DESCRIPTION |

in **USA**: Contact your nearest SHARP Parts Distributor to order.
For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

★ MARK : SPARE PARTS-DELIVERY SECTION

▲ MARK : X- RAY RELATED PARTS

Ref. No.	Part No.	★	Description	Code
----------	----------	---	-------------	------

PICTURE TUBE

▲ Δ V101	VB48KRD89X/3E	X	Picture Tube	BY
▲ Δ DY601	RCiLH0100MEZZ	X	Deflection Yoke	AY
▲ Δ L703	RCiLG0108GJZZ	X	Degaussing Coil	AQ
	or			
	RCiLG0014MEZZ			
	or			
	RCiLG0099PEZZ			
	LHLDW0102GJKZ	X	Holder	AC
	LHLDW1007MEKZ	X	Holder	AD
	PMAGF3046CEZZ	R	Purity Magnet	AF
	QEARC2016PEZZ	J	Grounding Strap	AG

PRINTED WIRING BOARD ASSEMBLIES (NOT REPLACEMENT ITEM)

PWB-A DUNTKA358WEX0 — MAIN Unit
PWB-B DUNTKA359WEW3 — CRT Unit

Ref. No.	Part No.	★	Description	Code
----------	----------	---	-------------	------

PWB-A: DUNTKA358WEX0

MAIN UNIT

TUNER

NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

▲ Δ TU51	VTUVTST5UF770	R	Tuner	AZ
	or			
	VTUENV56D82-1			

INTEGRATED CIRCUITS

▲ Δ IC201	RH-iX3354CEZZ	J	LA76843	AT
	or			
	RH-iX3354CEN1			

	COMBINATION	
IC201	RH-iX3354CEZZ	RH-iX3354CEN1
C211	VCKYCY1HB102K(1000p)	—
C301	VCCCCY1HH470J(47p)	VCCCCY1HH220J(22p)
C304	VCCCCY1HH470J(47p)	VCCCCY1HH220J(22p)
C802	—	VCEA0A1CW106M(10 μ (16V))
R209	VRS-CY1JF123J(12k)	VRS-CY1JF000J(0)
R302	VRS-CY1JF332J(3.3k)	VRS-CY1JF152J(1.5k)
R413	VRS-CY1JF152J(1.5k)	VRS-CY1JF222J(2.2k)

IC351	VHiAN7511/-1	J	AN7511	AK
▲ Δ IC501	VHiLA7840/-1	J	LA7840	AR
▲ Δ IC701	VHiTEA1507/-1	J	TEA1507P/N1	AL
▲ Δ IC702	RH-FX0034CEZZ	J	PC817	AE
IC771	VHiKA7805AP-1	J	KA7805API	AE
	or			
	VHiTA7805S/-1			
IC2001	RH-iX3492CEZZQ	X	TMPA8700CPF	AT
IC2040	VHiPST994C/-1	J	PST994C	AD
IC2102	VHiBR2416E2-1	J	BR2416E2	AK
	or			
	VHiM24C16B/-1	J	M24C16B (IC2101)	AG

TRANSISTORS

Q101	VS2SC945AQ/-1	J	2SC945AQ	AB
	or			
	VS2SC3198Y/-1			
Q201	VS2SC2735//1E	J	2SC2735	AC
Q451	VS2SA1530R/-1	J	2SA1530AR	AB
Q452	VS2SA1266-Y-1	J	2SA1266-Y	AA
Q601	VS2SC2482//1E	J	2SC2482	AD
▲ Q602	VS2SD2586//1E	J	2SD2586	AM
Q631	VS2SC945AQ/-1	J	2SC945AQ	AB
	or			
	VS2SC3198Y/-1			
▲ Q701	VSSPP04N60C-1	J	FET	AH
	or			
	VSSPP07N60C-1			
	or			
	VS2SK2708//1E			
	or			
	VS2SK2645++-1			
	or			
	VSSTP6NC60+-1			
	or			
	VSSTP6NC60F-1			

Ref. No.	Part No.	★	Description	Code
PWB-A: DUNTKA358WEX0				
MAIN UNIT (Continued)				
	or VSSTP7NB60F-1			
Q702	VS2SC945AQ/-1	J	2SC945AQ	AB
	or VS2SC3198Y/-1			
Q751	VS2SC945AQ/-1	J	2SC945AQ	AB
Q752	VS2SC945AQ/-1	J	2SC945AQ	AB
	or VS2SC3198Y/-1			
Q2201	VS2SC3928R/-1	J	2SC3928R	AB
	or VS2PD601ARQ-1			
Q2211	VS2SC3928R/-1	J	2SC3928R	AB
DIODES				
D52	RH-EX0676GEZZ	J	Zener Diode, 32V	AA
D101	RH-EX0616GEZZ	J	Zener Diode, 5.6V	AA
D352	VHD1SS119//-1	J	Diode	AB
	or RH-DX0475CEZZ			
D353	RH-EX0644GEZZ	J	Zener Diode, 13V	AB
D453	RH-EX0616GEZZ	J	Zener Diode, 5.1V	AA
D455	VHD1SS119//-1	J	Diode	AB
	or RH-DX0475CEZZ			
D456	VHD1SS119//-1	J	Diode	AB
	or RH-DX0475CEZZ			
D457	RH-EX0644GEZZ	J	Zener Diode, 13V	AB
D458	RH-EX0644GEZZ	J	Zener Diode, 13V	AB
D459	VHD1SS119//-1	J	Diode	AB
	or RH-DX0475CEZZ			
D502	RH-DX0131CEZZ	J	Diode	AC
D511	RH-DX0441CEZZ	J	Diode	AC
D632	RH-EX0630GEZZ	J	Zener Diode, 9.1V	AA
D641	RH-EX0630GEZZ	J	Zener Diode, 9.1V	AA
▲ ▲ D651	VHD1SS244//-1	J	Diode	AB
▲ ▲ D653	RH-EX0667GEZZ	J	Zener Diode, 27V	AA
▲ D661	RH-DX0468CEZZ	J	Diode	AE
	or RH-DX0302CEZZ			
▲ D701	RH-DX0490CEZZ	J	Diode	AC
	or RH-DX0154CEZZ			
▲ D702	RH-DX0490CEZZ	J	Diode	AC
	or RH-DX0154CEZZ			
▲ D703	RH-DX0490CEZZ	J	Diode	AC
	or RH-DX0154CEZZ			
▲ D704	RH-DX0490CEZZ	J	Diode	AC
	or RH-DX0154CEZZ			
D707	RH-DX0475CEZZ	J	Diode	AB
	or VHD1SS244//-1			
D708	RH-DX0475CEZZ	J	Diode	AB
	or VHD1SS244//-1			
▲ D709	RH-DX0229CEZZ	J	Diode	AF
▲ D712	RH-DX0487CEZZ	J	Diode	AC
	or RH-DX0302CEZZ			
	or RH-DX0468CEZZ			
	or VHDD1NS4///-1			
D717	RH-EX0616GEZZ	J	Zener Diode, 5.6V	AA
▲ D725	RH-DX0131CEZZ	J	Diode	AC

Ref. No.	Part No.	★	Description	Code
D726	VHD1SS119//-1	J	Diode	AB
	or RH-DX0475CEZZ			
D751	RH-EX0611GEZZ	J	Zener Diode, 5.1V	AA
D753	RH-DX0441CEZZ	J	Diode	AC
	or RH-DX0110CEZZ			
▲ D758	RH-DX0131CEZZ	J	Diode	AC
▲ VA701	RH-VX0048CEZZ	J	Varistor	AE
	or RH-VX0019CEZZ			
PACKAGED CIRCUIT				
▲ PR701	RMPTP0026CEZZ	J	Packaged Circuit	AF
X801	RCRSB0001PEZZ	J	Crystal	AL
	or RCRSB0205CEZZ			
FILTER AND COILS				
CF2040	RFILA0099CEZZ	J	Ceramic Filter	AE
	or RFILC0121GEZZ			
L201	VP-XF1R2K0000	J	Peaking 1.2μH	AB
L202	VP-XF1R2K0000	J	Peaking 1.2μH	AB
L203	VP-XF220K0000	J	Peaking 22μH	AB
L204	RCiLi0632CEZZ	J	IF Coil	AE
L301	VP-XF150K0000	J	Peaking 15μH	AB
▲ L701	RCiLF0078PEZZ	J	Coil	AF
	or RCiLF0069PEZZ			
▲ L705	RCiLP0179CEZZ	J	Coil	AD
L706	RCiLP0197CEZZ	J	Coil (JA301)	
L2040	RCiLB0131CEZZ	J	Oscillation Coil	AE
SF201	RFILC0441CEZZ	J	SAW Filter	AH
TRANSFORMERS				
▲ T601	RTRNZ0731CEZZ	J	Transformer	AG
	or RTRNZ0026PEZZ			
▲ ▲ T602	RTRNF0213PEZZ	J	H-Volt Transformer	AY
▲ T702	RTRNW0003PEZZ	J	Transformer	AM
	or RTRNW0009PEZZ			
CONTROL				
R738	RVR-M4588CEZZ	X	22k(B) Variable Resistor	AF
	or RVR-M4336CEZZ			
CAPACITORS				
[EL... Electrolytic, M-Poly... Metalized Polypro Film]				
C51	VCEA0A1AW337M	X	330 10V EL.	AE
C53	VCEA0A1HW105M	J	1.0 50V EL.	AB
C54	VCEA0A1HW475M	J	4.7 50V EL.	AB
C101	VCEA0A1CW476M	J	47 16V EL.	AB
C201	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C202	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C203	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C204	VCQYTA1HM223K	J	0.022 50V Mylar	AB
C205	VCKYPA1HB103K	J	0.01 50V Ceramic	AA
C206	VCKYCY1HB102K	J	1000p 50V Ceramic	AA
C207	VCEA0A1CW476M	J	47 16V EL.	AB
C208	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA
C209	VCEA0A1HW105M	J	1.0 50V EL.	AB
C210	VCEA0A1HW474M	J	0.47 50V EL.	AB
C211	VCKYCY1HB102K	J	1000p 50V Ceramic (IC201:iX3354CEZZ)	AA
C212	VCEA0A1HW474M	J	0.47 50V EL.	AB
C220	VCKYCY1CB104K	J	0.1 16V Ceramic	AB
C301	VCCCCY1HH470J	J	47p 50V Ceramic (IC201:iX3354CEZZ)	AA
C301	VCCCCY1HH220J	J	22p 50V Ceramic (IC201:iX3354CEN1)	AA
C302	VCKYCY1HB102K	J	1000p 50V Ceramic	AA

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
PWB-A: DUNTKA358WEX0									
MAIN UNIT (Continued)									
C304	VCCCCY1HH470J	J	47p 50V Ceramic	AA	C726	RC-KZ0338CEZZ	J	560p 2kV Ceramic	AD
C304	VCCCCY1HH220J	J	22p 50V Ceramic (IC201:iX3354CEZZ)	AA	△C727	VCKYPA2HB472K	J	4700p 500V Ceramic	AB
C305	VCKYCY1HB103K	J	0.01 50V Ceramic	AA	△C730	VCEA0A1CW108M	J	1000 16V EL.	AD
C306	VCQYTA1HM103K	J	0.01 50V Mylar	AB	△C731	VCEA0A1EW107M	J	100 25V EL.	AC
C354	VCEA0A1HW225M	J	2.2 50V EL.	AB	C732	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C356	VCKYCY1HB332K	J	3300p 50V Ceramic	AA	C735	VCCCPA1HH680J	J	68p 50V Ceramic	AA
C357	VCEA0A1HW106M	J	10 50V EL.	AB	C737	VCEA0A1EW226M	J	22 25V EL.	AB
C358	VCEA0A1HW106M	J	10 50V EL.	AB	C738	RC-KZ0040CEZZ	J	820p 2kV Ceramic	AD
C361	VCEA0A1CW227M	J	220 16V EL.	AC		or			
C401	VCCCCY1HH470J	J	47p 50V Ceramic	AA		RC-KZ0340CEZZ			
C411	VCEA0A1AW108M	J	1000 10V EL.	AC	C739	VCEA0A1HW104M	J	0.1 50V EL.	AB
C412	VCKYCY1HB103K	J	0.01 50V Ceramic	AA	C740	VCEA0A1EW476M	J	47 25V EL.	AB
C414	VCEA0A1HW563M	J	2.2 50V EL.	AB	C743	RC-KZ0338CEZZ	J	560p 2kV Ceramic	AD
C416	VCEA0A1HW105M	J	1.0 50V EL.	AB	C750	VCKYPA1HF103Z	J	0.01 50V Ceramic	AA
C418	VCKYCY1HB103K	J	0.01 50V Ceramic	AA	C752	VCEA0A1CW476M	J	47 16V EL.	AB
C421	VCEA0A1HW106M	J	10 50V EL.	AB	C753	RC-KZ0338CEZZ	J	560p 2kV Ceramic	AD
C451	VCQYTA1HM563K	J	0.056 50V Mylar	AB	C754	VCEA0A1CW476M	J	47 16V EL.	AB
C454	VCEA0A1HW475M	J	4.7 50V EL.	AB	C758	VCEA0A2EW106M	J	10 250V EL.	AD
C455	VCEA0A1CW226M+J	J	22 16V EL.	AB	C759	VCKYPA2HB102K	J	1000p 500V Ceramic	AA
C456	VCEA0A1HW475M	J	4.7 50V EL.	AB	C760	VCEA0A1CW108M	J	1000 16V EL.	AD
C509	VCKYPA2HB102K	J	1000p 500V Ceramic	AA	C771	VCEA0A1CW476M	J	47 16V EL.	AB
C510	VCEA0A1VW477M	J	470 35V EL.	AB	C772	VCEA0A1CW476M	J	47 16V EL.	AB
C512	VCFYSA1JB224J	X	0.22 63V Mylar	AF	C783	VCQYTA1HM103K	J	0.01 50V Mylar	AB
C513	VCFYSA1JB473J	J	0.047 63V Mylar	AC	C801	VCCCCY1HH180J	J	18p 50V Ceramic	AA
C514	VCEA0A1EW477M	J	470 25V EL.	AD	C802	VCEA0A1CW106M	J	10 16V EL.	AB
C515	VCEA0A1HW475M	J	4.7 50V EL.	AB		(IC201:iX3354CEN1)			
C516	VCKYCY1HB222K	J	2200p 50V Ceramic	AA	C807	VCKYCY1EF104Z	J	0.1 25V Ceramic	AA
C517	VCEA0A1CW226M	J	22 16V EL.	AB	C808	VCEA0A1CW106M	J	10 16V EL.	AB
C520	VCEA0A1HW107M	J	100 50V EL.	AB	C811	VCKYCY1CB473K	J	0.047 16V Ceramic	AA
C530	VCFYFA1HA334J	J	0.33 50V Mylar	AB	C812	VCEA0A1HW474M	J	0.47 50V EL.	AB
C531	VCFYFA1HA564J	J	0.56 50V Mylar	AB	C901	VCEA0A1HW105M	J	1.0 50V EL.	AB
C606	VCKYPA2HB561K	J	560p 500V Ceramic	AA	C905	VCEA0A1HW106M	J	10 50V EL.	AB
C607	VCKYPA1HB472K	J	4700p 50V Ceramic	AA	C2001	VCCCCY1HH101J	J	100p 50V Ceramic	AA
△C610	VCFPVC3CA802H	X	8000p 1.6kV M-Poly.	AF	C2002	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C612	VCFPVC2DB474J	J	0.47 200V M-Poly.	AE	C2040	VCEA0A1AW107M	J	100 10V EL.	AB
C633	VCEA0A1AW337M	X	330 10V EL.	AE	C2041	VCEA0A1HW105M	J	1.0 50V EL.	AB
C634	VCKYCY1HF103Z	J	0.01 50V Ceramic	AA	C2060	VCKYCY1CB104K	J	0.1 16V Ceramic	AB
C635	VCEA0A1HW105M	J	1.0 50V EL.	AB	C2061	VCKYCY1HB222K	J	2200p 50V Ceramic	AA
C636	VCQYTA1HM153K	J	0.015 50V Mylar	AA	C2062	VCEA0A1AW107M	J	100 10V EL.	AB
C637	VCEA0A1CW476M	J	47 16V EL.	AB	C2201	VCKYCY1HB682K	J	6800p 50V Ceramic	AA
C652	VCEA0A1HW475M	J	4.7 50V EL.	AB	C2202	VCCCCY1HH560J	J	56p 50V Ceramic	AA
C653	VCEA0A1HW105M	J	1.0 50V EL.	AB	C2601	VCEA0A1HW475M	J	4.7 50V EL.	AB
C661	VCKYPA2HB152K	J	1500p 500V Ceramic	AA	C2602	VCCCCY1HH101J	J	100p 50V Ceramic	AA
C662	VCEA0A1CW477M	J	470 16V EL.	AC	RESISTORS				
△C701	RC-FZ036SCEZZ	J	0.1 250V M-Poly.	AC	[M-Ox... Metal Oxide, M-Film ... Metal Film]				
	or				RJ2	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
	RC-FZ008SGEZZ				RJ7	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
	or				RJ8	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
	RC-FZ016SCEZZ				RJ9	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
	or				RJ10	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
	RC-FZ028SCEZZ				RJ12	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
	or				RJ18	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
	RC-FZ029CUMZZ				RJ19	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
					RJ20	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
					RJ21	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
C702	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC	△R53	VRS-RG3LB223J	X	22k 3W M-Ox.	AF
C703	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC	R54	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
△C705	RC-EZ1022CEZZ	J	470 200V EL.	AK	R55	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
	or				R56	VRS-CY1JF823J	J	82k 1/16W M-Ox.	AA
	RC-EZ0609CEZZ		220 200V EL.		R57	VRD-RA2BE563J	J	56k 1/8W Carbon	AA
	or				R101	VRD-RA2BE152J	J	1.5k 1/8W Carbon	AA
	RC-EZ0629CEZZ		220 200V EL.		R201	VRS-CY1JF221J	J	220 1/16W M-Ox.	AA
△C706	RC-KZ0092GEZZ	J	0.0033 AC250V Ceramic	AC	R202	VRS-CY1JF122J	J	1.2k 1/16W M-Ox.	AA
	or				R203	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA
	RC-KZ021SCEZZ				R204	VRS-CY1JF270J	J	27 1/16W M-Ox.	AA
C717	VCKYPA2HB472K	J	4700p 500V Ceramic	AB	R205	VRD-RA2BE680J	J	68 1/8W Carbon	AA
△C723	RC-EZ0638CEZZ	J	33 160V EL.	AG	R206	VRD-RA2EE151J	J	150 1/4W Carbon	AA
△C725	RC-EZ0724CEZZ	J	100 160V EL.	AG	R207	VRD-RA2BE123J	J	12k 1/8W Carbon	AA
					R208	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA
					R209	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA
						(IC201:iX3354CEZZ)			
					R209	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
						(IC201:iX3354CEN1)			
					R210	VRS-CY1JF104J	J	100k 1/16W M-Ox.	AA

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
PWB-A: DUNTKA358WEX0									
MAIN UNIT (Continued)									
R211	VRS-CY1JF104J	J	100k 1/16W M-Ox.	AA	▲△ R654	VRD-RA2BE154J	J	150k 1/8W Carbon	AA
R212	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA	▲△ R655	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R215	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA	△ R659	VRN-RL3AB1R0J	X	1.0 1W M-Film	AE
R220	VRS-CY1JF331J	J	330 1/16W M-Ox.	AA	△ R661	VRN-RL3ABR47J	X	0.47 1W M-Film	AE
R301	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA	▲△ R662	VRD-RA2BE102G	J	1.0k 1/8W Carbon	AB
R302	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA	△ R702	RR-DZ0049CEZZ	J	3.9 1/2W Carbon	AB
			(IC201:IX3354CEZZ)		△ R703	VRW-KP3HC1R8K	J	1.8 5W Cement	AC
R302	VRS-CY1JF152J	J	1.5k 1/16W M-Ox.	AA	R705	VRN-RL3ABR39J	X	0.39 1W M-Film	AE
			(IC201:IX3354CEN1)		R706	VRN-RL3ABR39J	X	0.39 1W M-Film	AE
R353	VRD-RA2BE683J	J	68k 1/8W Carbon	AA	R707	VRD-RM2HD270J	J	27 1/2W Carbon	AA
R354	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	R708	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA
R355	VRD-RA2BE223J	J	22k 1/8W Carbon	AA	R710	VRS-RG2HC102J	J	1.0k 1/2W M-Ox.	AA
R357	VRS-CY1JF822J	J	8.2k 1/16W M-Ox.	AA	R711	VRS-CY1JF334J	J	330k 1/16W M-Ox.	AA
R401	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA	R712	VRD-RA2BE100J	J	10 1/8W Carbon	AA
R402	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA	R713	VRS-RG2HC122J	X	1.2k 1/2W M-Ox.	AE
R403	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA	R715	VRD-RA2BE150J	J	15 1/8W Carbon	AA
R404	VRD-RA2BE102J	J	1.0k 1/8W Carbon	AA	R716	VRS-RG3AB121J	X	120 1W M-Film	AE
R411	VRS-CY1JF684J	J	680k 1/16W M-Ox.	AA	R721	VRD-RM2HD124J	J	120k 1/2W Carbon	AA
R412	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA	R723	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA
R413	VRS-CY1JF152J	J	1.5k 1/16W M-Ox.	AA	R725	VRS-RG2HC821J	X	820 1/2W M-Ox.	AE
			(IC201:IX3354CEZZ)		R733	VRD-RA2EE394J	J	390k 1/4W Carbon	AA
R413	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA	R736	VRD-RM2HD184J	J	180k 1/2W Carbon	AA
			(IC201:IX3354CEN1)		R739	VRD-RM2HD332J	J	3.3k 1/2W Carbon	AA
R414	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA	R740	VRD-RM2HD470J	J	47 1/2W Carbon	AA
R421	VRS-CY1JF223J	J	22k 1/16W M-Ox.	AA	R741	VRN-RA2BK682F	J	6.8k 1/8W M-Film	AA
△ R451	VRS-RG2HC103J	J	10k 1/2W M-Ox.	AA	R751	VRD-RA2BE821J	J	820 1/8W Carbon	AA
R453	VRD-RA2BE152J	J	1.5k 1/8W Carbon	AA	R752	VRD-RA2BE562J	J	5.6k 1/8W Carbon	AA
R454	VRD-RA2EE334J	J	330k 1/4W Carbon	AA	R755	VRD-RM2HD151J	J	150 1/2W Carbon	AA
R455	VRD-RA2BE392J	J	3.9k 1/8W Carbon	AA	△ R758	VRS-RG2HC100J	X	10 1/2W M-Ox.	AE
R456	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	△ R773	VRS-RG3LB270J	X	27 3W M-Ox.	AF
R457	VRD-RA2BE102J	J	1.0k 1/8W Carbon	AA	△ R774	VRS-VU3LE680J	J	68 3W M-Ox.	AC
R458	VRD-RA2EE334J	J	330k 1/4W Carbon	AA		or			
R460	VRD-RA2BE152J	J	1.5k 1/8W Carbon	AA	R801	VRD-RM2HD470J	J	47 1/2W Carbon	AA
R461	VRS-CY1JF184J	J	180k 1/16W M-Ox.	AA	R807	VRS-CY1JF272J	J	2.7k 1/16W M-Ox.	AA
R462	VRS-CY1JF273J	J	27k 1/16W M-Ox.	AA	R808	VRS-CY1JF272J	J	2.7k 1/16W M-Ox.	AA
R512	VRD-RM2HD102J	J	1.0k 1/2W Carbon	AA	R809	VRS-CY1JF223J	J	22k 1/16W M-Ox.	AA
R513	VRD-RM2HD102J	J	1.0k 1/2W Carbon	AA	R810	VRS-CY1JF223J	J	22k 1/16W M-Ox.	AA
R514	VRD-RM2HD1R0J	J	1.0 1/2W Carbon	AA	R901	VRD-RA2BE101J	J	100 1/8W Carbon	AB
R515	VRS-RG3AB391J	X	390 1W M-Ox.	AE	R902	VRS-CY1JF750J	J	75 1/16W M-Ox.	AA
R516	VRS-CY1JF153J	J	15k 1/16W M-Ox.	AA	R906	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA
R517	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA	R925	VRS-CY1JF104J	J	100k 1/16W M-Ox.	AA
R518	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA	R961	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R519	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	R962	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA
R520	VRD-RM2HD1R2J	J	1.2 1/2W Carbon	AA	R2001	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA
R522	VRD-RA2BE102J	J	1.0k 1/8W Carbon	AA	R2002	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R523	VRD-RA2BE562J	J	5.6k 1/8W Carbon	AA	R2006	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R525	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA	R2008	VRS-CY1JF472J	J	4.7k 1/16W M-Ox.	AA
R528	VRD-RA2BE272J	J	2.7k 1/8W Carbon	AA	R2009	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA
R529	VRD-RA2BE472J	J	4.7k 1/8W Carbon	AA	R2010	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA
△ R604	VRS-RG3DB682J	X	6.8k 2W M-Ox.	AE	R2012	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R605	VRD-RA2BE121J	J	120 1/8W Carbon	AA	R2016	VRS-CY1JF223J	J	22k 1/16W M-Ox.	AA
R606	VRD-RA2BE102J	J	1.0k 1/8W Carbon	AA	R2018	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
△ R607	VRS-RG3DB682J	X	6.8k 2W M-Ox.	AE	R2020	VRS-CY1JF223J	J	22k 1/16W M-Ox.	AA
△ R608	VRS-RG3DB391J	X	390 2W M-Ox.	AE	R2022	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA
△ R609	VRS-RG3AB562J	X	5.6k 1W M-Ox.	AE	R2023	VRD-RA2BE223J	J	22k 1/8W Carbon	AA
R610	VRD-RM2HD220J	J	22 1/2W Carbon	AA	R2024	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
△ R611	VRS-KA3HG3R3K	J	3.3 5W M-Ox.	AD	R2025	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R622	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA	R2026	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R623	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	R2027	VRD-RA2BE682J	J	6.8k 1/8W Carbon	AA
R624	VRN-RA2BK472F	J	4.7k 1/8W M-Film	AA	R2028	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA
R634	VRD-RM2HD121J	J	120 1/2W Carbon	AA	R2029	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA
R635	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA	R2032	VRD-RA2BE471J	J	470 1/8W Carbon	AA
R636	VRD-RA2EE221J	J	220 1/4W Carbon	AA	R2033	VRS-CY1JF684J	J	680k 1/16W M-Ox.	AA
△ R641	VRS-RG3AB682J+	X	6.8k 1W M-Ox.	AE	R2034	VRS-CY1JF684J	J	680k 1/16W M-Ox.	AA
▲△ R651	VRD-RM2HD270J	J	27 1/2W Carbon	AA	R2040	VRS-CY1JF102J	J	1.0k 1/16W M-Ox.	AA
△ R653	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA	R2041	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA
					R2042	VRD-RA2BE101J	J	100 1/8W Carbon	AB
					R2043	VRD-RA2BE101J	J	100 1/8W Carbon	AB

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
PWB-A: DUNTKA358WEX0									
MAIN UNIT (Continued)									
R2044	VRS-CY1JF683J	J	68k 1/16W M-Ox.	AA	FH701	QFSHD1013CEZZ	J	Fuse Holder	AC
R2045	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA	FH702	QFSHD1014CEZZ	J	Fuse Holder	AC
R2047	VRS-CY1JF221J	J	220 1/16W M-Ox.	AA	J903	QJAKE0205CE09	J	Jack, Audio-In	AD
R2048	VRS-CY1JF562J	J	5.6k 1/16W M-Ox.	AA		or			
R2049	VRS-CY1JF333J	J	33k 1/16W M-Ox.	AA		QJAKE0159CEZZ			
R2060	VRS-CY1JF221J	J	220 1/16W M-Ox.	AA	J905	QJAKE0205CE04	J	Jack, Video-In	AD
R2061	VRS-CY1JF562J	J	5.6k 1/16W M-Ox.	AA		or			
R2062	VRS-CY1JF183J	J	18k 1/16W M-Ox.	AA		QJAKE0158CEZZ			
R2063	VRS-CY1JF222J	J	2.2k 1/16W M-Ox.	AA	P302	QPLGN0261CEZZ	J	Plug, 2-pin(S)	AB
R2065	VRS-CY1JF000J	J	0 1/16W M-Ox.	AA	P401	QPLGN0561CEZZ	J	Plug, 5-pin(GBN)	AB
R2066	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	P601	QPLGN0660CEZZ	J	Plug, 6-pin(K)	AC
R2067	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	P651	QPLGN0361CEZZ	J	Plug, 3-pin(TP651-3)	AB
R2068	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	P701	QPLGN0260CEZZ	J	Plug, 2-pin(M)	AC
R2070	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	P751	QPLGN0461CEZZ	J	Plug, 4-pin(YBN)	AB
R2072	VRS-CY1JF103J	J	10k 1/16W M-Ox.	AA	P2001	QPLGN0561CEZZ	J	Plug, 5-pin(TP2001-5)	AB
R2101	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA	RMC2601	RRMCU0252CEZZ	X	R/C Receiver	AH
			(IC2101:M24C16B)			or			
R2102	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA		RRMCU0232CEZZ			
			(IC2101:M24C16B)		HM602	LX-GZ3001PEZZ	J	Screw	AB
R2103	VRD-RA2BE101J	J	100 1/8W Carbon	AB	HM604	LX-GZ3001PEZZ	J	Screw	AB
			(IC2102:BR2416E2)		HM612	LX-GZ3001PEZZ	J	Screw	AB
R2104	VRD-RA2BE101J	J	100 1/8W Carbon	AB	HM613	LX-GZ3002PEZZ	J	Screw	AB
			(IC2102:BR2416E2)		HM614	LX-GZ3002PEZZ	J	Screw	AB
R2201	VRD-RA2BE103J	J	10k 1/8W Carbon	AA	HM726	LX-GZ3002PEZZ	J	Screw	AB
R2202	VRD-RA2BE473J	J	47k 1/8W Carbon	AA	HM740	LX-GZ3002PEZZ	J	Screw	AB
R2203	VRS-CY1JF332J	J	3.3k 1/16W M-Ox.	AA	HM741	LX-GZ3002PEZZ	J	Screw	AB
R2211	VRD-RA2BE222J	J	2.2k 1/8W Carbon	AA	HM742	LX-GZ3002PEZZ	J	Screw	AB
R2212	VRS-CY1JF682J	J	6.8k 1/16W M-Ox.	AA	RDA501	PRDAR0297PEFW	J	Heat Sink, for IC501	AD
R2213	VRD-RA2BE223J	J	22k 1/8W Carbon	AA	RDA602	PRDAR0216PEFW	J	Heat Sink, for Q602	AE
R2401	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA	RDA701	PRDAR0026PEFW	J	Heat Sink, for Q701	AD
R2402	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA		LX-BZ3100CEFD	J	Screw	AA
R2403	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA					
R2404	VRS-CY1JF101J	J	100 1/16W M-Ox.	AA					
R2501	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA					
R2503	VRS-CY1JF273J	J	27k 1/16W M-Ox.	AA					
R2504	VRS-CY1JF123J	J	12k 1/16W M-Ox.	AA					
R2505	VRS-CY1JF563J	J	56k 1/16W M-Ox.	AA					
R2506	VRS-CY1JF563J	J	56k 1/16W M-Ox.	AA					
R2507	VRS-CY1JF823J	J	82k 1/16W M-Ox.	AA					
R2508	VRS-CY1JF153J	J	15k 1/16W M-Ox.	AA					
R2509	VRS-CY1JF272J	J	2.7k 1/16W M-Ox.	AA					
R2601	VRD-RA2BE331J	J	330 1/8W Carbon	AA					
SWITCHES									
S2501	QSW-K0202PEZZ	J	Power	AC					
	or								
	QSW-K0079GEZZ								
S2502	QSW-K0202PEZZ	J	VOL-Down	AC					
	or								
	QSW-K0079GEZZ								
S2503	QSW-K0202PEZZ	J	VOL-Up	AC					
	or								
	QSW-K0079GEZZ								
S2504	QSW-K0202PEZZ	J	CH-Down	AC					
	or								
	QSW-K0079GEZZ								
S2505	QSW-K0202PEZZ	J	CH-Up	AC					
	or								
	QSW-K0079GEZZ								
MISCELLANEOUS PARTS									
△ F701	QFS-B4023CEZZ	J	Fuse 4A/125V	AC					
	or								
	QFS-B0421GEZZ								
FB351	RBLN-0047CEZZ	J	Ferrite Bead	AB					
	or								
	RBLN-0091GEZZ								
FB601	RBLN-0047CEZZ	J	Ferrite Bead	AB					
FB2002	RBLN-0037CEZZ	J	Ferrite Bead	AB					
	or								
	RBLN-0091GEZZ								

Ref. No.	Part No.	★	Description	Code
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PWB-B: DUNTKA359WEW3 CRT UNIT

TRANSISTORS

Q852	VSBF422////-1	J	BF422	AC
	or			
	VS2SC2229O/1E			
Q854	VSBF422////-1	J	BF422	AC
	or			
	VS2SC2229O/1E			
Q856	VSBF422////-1	J	BF422	AC
	or			
	VS2SC2229O/1E			
Q881	VS2SA1266-Y-1	J	2SA1266-Y	AA
	or			
	VS2SA1015-Y-1			

DIODES

D882	RH-DX0475CEZZ	J	Diode	AB
D885	RH-DX0475CEZZ	J	Diode	AB

COIL

L852	VP-MK820K0000	J	Peaking 82μH	AB
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CAPACITORS

[EL... Electrolytic]

C851	VCCCCY1HH151J	J	150p 50V Ceramic	AA
C852	VCCCCY1HH151J	J	150p 50V Ceramic	AA
C853	VCCSPA1HL151J	J	150p 50V Ceramic	AA
C854	RC-KZ0029CEZZ	J	0.01 1.4kV Ceramic	AC

or

C883	RC-KZ0160CEZZ			
	VCEA0A1CW336M	J	33 16V EL.	AB

RESISTORS

[M-Ox... Metal Oxide]

R851	VRS-CY1JF470J	J	47 1/16W M-Ox.	AA
R852	VRD-RA2BE181J	J	180 1/8W Carbon	AA
R853	VRS-CY1JF121J	J	120 1/16W M-Ox.	AA
△ R857	VRS-VU3AE123J	J	12k 1W M-Ox.	AB
R858	VRD-RM2HD332J	J	3.3k 1/2W Carbon	AA
R859	VRS-CY1JF470J	J	47 1/16W M-Ox.	AA
R860	VRD-RA2BE181J	J	180 1/8W Carbon	AA
R861	VRS-CY1JF121J	J	120 1/16W M-Ox.	AA
△ R865	VRS-VU3AE123J	J	12k 1W M-Ox.	AB
R866	VRD-RM2HD332J	J	3.3k 1/2W Carbon	AA
R867	VRS-CY1JF470J	J	47 1/16W M-Ox.	AA
R868	VRS-CY1JF181J	J	180 1/16W M-Ox.	AA
R869	VRS-CY1JF121J	J	120 1/16W M-Ox.	AA
△ R873	VRS-VU3AE123J	J	12k 1W M-Ox.	AB
R874	VRD-RM2HD332J	J	3.3k 1/2W Carbon	AA
R881	VRS-CY1JF561J	J	560 1/16W M-Ox.	AA
R882	VRS-CY1JF391J	J	390 1/16W M-Ox.	AA
R883	VRD-RA2BE561J	J	560 1/8W Carbon	AA
R884	VRS-CY1JF152J	J	1.5k 1/16W M-Ox.	AA
R886	VRS-CY1JF821J	J	820 1/16W M-Ox.	AA
R887	VRD-RA2BE470J	J	47 1/8W Carbon	AA

MISCELLANEOUS PARTS

P851	QPLGN0561CEZZ	J	Plug, 5-pin(GBN)	AB
P852	QPLGN0461CEZZ	J	Plug, 4-pin(YBN)	AB
SC851	QSOCV0933CEZZ	J	CRT Socket	AH
	or			
	QSOCV0016PEZZ			

Ref. No.	Part No.	★	Description	Code
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MISCELLANEOUS PARTS

△ ACC701	QACCD3064CESA	J	AC Cord	AM
	or			
	QACCD3090CESA			
	or			
	QACCD3060CESA			
SP1	VSP0080PBP7YA	X	Speaker, 32 ohm	AL
	QCNW-2111PEZZ	J	Connecting Cord	AF
	QCNW-2112PEZZ	J	Connecting Cord	AF
	QCNW-2160PEZZ	J	Connecting Cord	AG
	TCAUS3000GJZZ	X	Caution Card	AB
	TLABM0003GJZZ	X	Label	AB

SUPPLIED ACCESORRIES

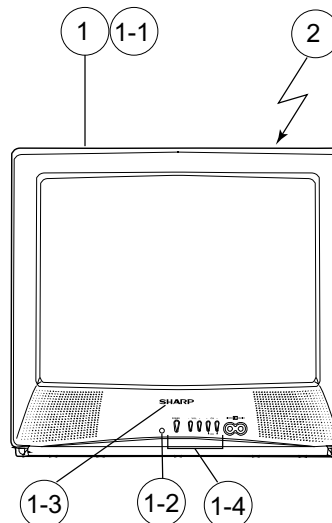
RRMCG1339CESB	X	Infrared R/C Unit	AQ
TiNS-7371GJZZ	X	Operation Manual	AG

PACKING PARTS (NOT REPLACEMENT ITEM)

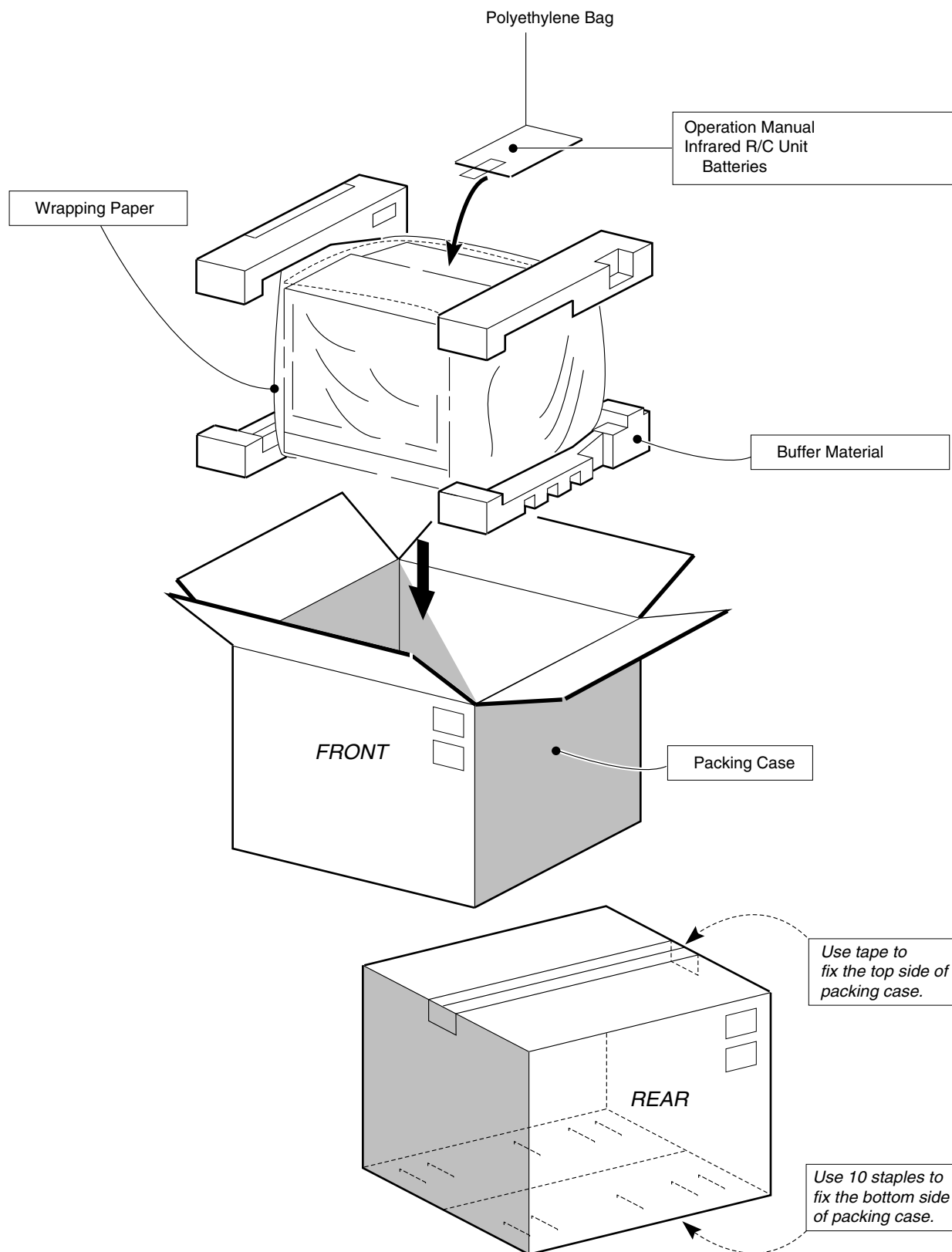
SPAKC0210GJZZ	-	Packing Case	-
SPAKP0102GJZZ	-	Wrapping Paper	-
SPAKX0003GJZZ	-	Buffer Material	-
SSAKA0101GJZZ	-	Polyethylene Bag	-

CABINET PARTS

1	CCABA0006WEH2	X	Front Cabinet Ass'y	AY
1-1	Not Available	-	Front Cabinet	-
1-2	GCOVA0003GJSA	X	Cover for R/C	AG
1-3	HBDGB1001GJSB	X	Badge, "SHARP"	AF
1-4	JBTN-0003GJSD	X	Button(Power, Vol-up/down, CH-up/down)	AH
2	GCABB0109GJKA	X	Rear Cabinet	AW



PACKING OF THE SET



MARK : Not replacement items.

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